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Brief Report on Server Virtualization and Cloud Computing

Sowmya Agarwal*

Department of Electronics and Computers Science, JNTU, Ananthapur, India

Introduction

Server virtualization and cloud computing

Virtualization is making a virtual foundation of server working systems and data storage. Virtualization helps the client by giving various servers simultaneously and permits sharing a solitary physical asset or an application to numerous clients. Virtualization has rapidly increased the fundamental way of computing. One of the significant features of virtualization is that it permits the sharing of uses too numerous clients and organizations.

Server virtualization permits one physical server to run multiple separate computing environments. Cloud providers have massive information stockpiling, which is loaded up with servers to switch cloud administrations of the servers; however, they cannot give a particular server to every client. So, they virtually divide the data on the server, enabling each customer to work with a different "virtual" case of the same software.

Different types in server virtualization

Server virtualization is categorized into hypervisor virtualization, para-virtualization, and full virtualization. The hypervisor is a key aspect of the successful running of multiple operating systems. It can perform tasks such as handling queues, dispatching, and returning the hardware request. We use it to administer and manage the virtual machines. Para-virtualization technology was developed as an open-source software project. Para-virtualization technology was developed as an open-source software project. Full virtualizations can emulate the underlying hardware. It is quite similar to para-virtualization. It is a method by which computer service requests are separated from the physical hardware that facilitates them. Full virtualizations are of two different types of software assisted and hardware assisted full virtualization. The data cannot be modified in the full virtualization by the guest user administration [1].

Microsoft virtual server application is developed for windows operating systems, which enables to use different operating systems with standard x 86 based single physical server. This single physical server helps to run multiple operating systems that use software and hardware devices to create a virtual environment [2].

Server virtualization benefits

Server virtualization benefits the organizations in terms of cost, productivity, and infrastructure. The main reason is to reduce hardware. The issue of physical space is easily solved by virtualizing servers and utilizing more resources with less space. The idea is to have the same applications running on multiple servers so that in failure cases, the other server replaces it. In web hosting, there is no need for a separate computer as a single web server provides multiple numbers of virtual servers that are sufficient enough to handle the whole work [3].

Description

Economical

The primary benefit of server virtualization is it is cost-effective. It eliminates the cost of physical hardware and the maintenance cost as multiple virtual servers are used. Infrastructure expenditures can be reduced by reducing physical systems. Additionally, it aids the power consumption as well as the cooling costs.

Fast deployment and server provisioning

Server virtualization aids provisioning and deployment process within minutes by replicating an existing virtual machine. While working on a server, there are chances of system crash/failure, which is massive damage to the company. Since server virtualizations allow you to operate the same task in multiple servers at the same time, the data can be retrieved anytime with the help of the other servers. The risk of system failure consumes less time process, and downtime will also be very less.

Increase productivity

Less physical servers make it easy for them to maintain. It is allowing the end user to spend time on more productive tasks. Also, there are many tools available for making provision and convert services as efficiently as possible. Whereas, the cloud is accessible to all the users without any restriction, cost-effective, reliable for backup and recovery, and flexibility to access.

Address for Correspondence: Sowmya Agarwal, Department of Electronics and Computers Science, JNTU, Ananthapur, India, E-mail: sowmya1992@gmail.com

High-performance computing

High-performance cloud computing relies on computing power to solve large data center problems in subjects like health care, engineering, business, science. Many large companies are utilizing metal as a service to modernize their OS deployment toolchain and lower server provisioning time. By deploying metal as a service, they were able to speed-up their server deployment times as well as increase their orchestration platform and configuration management tools.

Important characteristics of a high-performing cloud are on-demand self-service, broad network access, rapid elasticity, measured service, location-transparent resource pooling for multiple users.

Hybrid cloud

Amazon web services or microsoft azure with orchestration among the various platforms comes under the hybrid cloud. The main benefits of hybrid cloud are control, speed, security, scalability, and cost [4].

Virtualization vs. cloud computing

Virtualization is a significant aspect of cloud computing technology that helps utilize cloud computing capabilities to the full. Different types of services can be provided by implementing virtualization and cloud computing in organizations using information technology. Cloud computing can be accessed through remote locations using login access and is secured network. It also helps to store extensive data. Both virtualization and cloud computing are cost-effective and increase the accessibility to reduce hardware expenditures [5].

Conclusion

Virtualization is done by centralizing the administrative parts while improving scalability and workloads and many businesses derive many benefits from it. The idea of cloud computing is getting more preferred, and it is now at the initial level. Server virtualization in cloud computing is recommended to organizations that help to information technology as to run their operating system on a virtual server and is capable of performing complicated tasks. It saves the cost along with the time, which can be used in multiple operations.

References

1. Ameen, Radhwan Y, and Asmaa Y Hamo. "Survey of server virtualization." *arXiv preprint arXiv* 1304 (2013): 3557.

2. Bin, Kenny, Martin Dippold, and David Watts. "Introducing Microsoft Virtual Server 2005 on IBM Eserver xSeries Servers." (2004).

3. Singh, Manjeet. "Virtualization in cloud computing-a study." In 2018 international conference on advances in computing, communication control and networking (ICACCCN), Greater Noida, India, IEEE (2018).

4. Malhotra, Lakshay, Devyani Agarwal, and Arunima Jaiswal. "Virtualization in cloud computing." *J Inform Tech Softw Eng* 4 (2014): 1-3.

5. Li, Jin, Yan Kit Li, Xiaofeng Chen, and Patrick PC Lee, et al. "A hybrid cloud approach for secure authorized deduplication." *IEEE Trans Parallel Distrib Syst* 26 (2014): 1206-1216.